UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF NEW YORK

CHARLES MALMBERG,

Plaintiff,

v. **5:06-CV-1042 (FJS/GHL)**

UNITED STATES OF AMERICA,

Defendant.

APPEARANCES **OF COUNSEL**

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SCULLIN, Senior Judge

MEMORANDUM-DECISION AND ORDER

I. INTRODUCTION

On or about September 15, 2006, Plaintiff filed this action pursuant to the Federal Tort Claims Act ("FTCA"), 28 U.S.C. §§ 1346(b) and 2671 *et seq*., for injuries he sustained on or about November 4, 2004, during the course of an anterior cervical discectomy with fusion ("ACDF") at the Syracuse Veterans Administration Medical Center ("SVAMC"), in Syracuse,

New York.

The Court held a bench trial from April 12, 2010, through April 14, 2010, and April 26, 2010.[1] At the trial, Plaintiff called as witnesses Dr. Satish Krishnamurthy, the surgeon who performed the surgery at issue, and as an expert Dr. Morris Soriano.[2] In addition, Plaintiff introduced the video deposition of his primary care physician, Dr. Hunsinger, and read into the record a portion of the deposition testimony of Dr. Donald Blaskiewicz, a surgeon who assisted with the surgery at issue. Defendant called Dr. Brian Cooney, a radiologist and employee of SVAMC, and Dr. Edward Dunn as an expert witness.

At the conclusion of trial, Defendant moved pursuant to Rule 52(c) of the Federal Rules of Civil Procedure for a judgment on partial findings, arguing that Plaintiff had failed to establish negligence and causation. The Court reserved decision on the motion and directed the parties to file proposed findings of fact and conclusions of law no later than forty-five days after receiving the trial transcript.

Having reviewed the parties' post-trial submissions as well as the trial transcript, the Court denies the Rule 52(c) motion and makes the following findings of fact and conclusions of law.

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[1] On April 26, 2010, the Court granted Plaintiff's motion to bifurcate the trial; and, therefore, the Court only heard testimony regarding the issue of liability during the four days of trial.

[2] Plaintiff testified as well, but his testimony relates only to the issue of damages. As such, his testimony is not relevant to the present discussion.

II. UNDISPUTED FACTS

A. General information regarding ACDF surgeries

1. On November 4, 2004, Plaintiff underwent an ACDF at the SVAMC to remove a degenerative disc and osteophytes causing an impingement at C5-C6.

2. An ACDF is a surgical procedure performed to remove a herniated or degenerative disc in the cervical (neck) spine. The goal of this procedure is to remove the herniated or degenerative disc, in addition to any other matter that might be pushing on the nerve roots or spinal cord, such as a bone spur or ligament, and then to replace the herniated or degenerative disc with a bone graft.

3. Discectomy literally means "cutting out the disc." A discectomy can be performed anywhere along the spine from the neck (cervical) to the lower back (lumbar). The surgeon reaches the damaged disc from the front (anterior) of the spine through the throat area. The surgeon accesses the disc and bony vertebrae by moving aside the neck muscles, trachea, and esophagus.

4. With the aid of a fluoroscope (commonly referred to as a "C-arm") – a form of x-ray – the surgeon passes a thin needle into the disc to locate the affected vertebra and disc.

5. To remove the damaged disc, the vertebrae above and below the disc must be held apart using some form of distraction. While there was a dispute among the experts as to the appropriateness of the distraction used in the present case, they in general did agree that there were various methods of achieving distraction when performing an ACDF. One such method involves using an instrument, referred to as a "distractor," such as a "disc space distractor." This method involves insertion of the instrument between the vertebrae to push the bone apart so as to

achieve space or openness which is needed in order to remove the damaged disc and any material impinging on the nerve roots or spinal cord and to insert the graft. Another method of achieving distraction is referred to as "cervical distraction." That is accomplished by pulling on the head and neck in such a way, either manually or by some pulley system, so as to achieve the appropriate space or openness.[3]

Once distraction is achieved, the outer wall of the disc (annulus) is cut; and the surgeon removes the damaged disc using small grasping tools. The surgeon must also remove the posterior longitudinal ligament ("PLL"), which runs behind the vertebrae, to reach the spinal canal. The surgeon then removes the disc material pressing on the spinal nerves, as well as any visible bone spurs.[4]

6. Once the surgeon removes the damaged disc and any remaining bone spurs and PLL, the surgeon fills the open disc space with a bone graft. The graft serves as a bridge between the two vertebrae to create a spinal fusion. The bone graft and vertebrae are often immobilized and held together with metal plates and screws. Prior to closing the incision, an x-ray is taken to verify the position of the bone graft and the metal plate and screws.

B. Plaintiff's pre-surgical condition

7. Prior to surgery, Plaintiff suffered from symptoms primarily in his left arm, including weakness, numbness and tingling. *See* Dkt. No. 76 at 11. He did not, however, demonstrate

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[3] Generally speaking, the method used is left to the surgeon's discretion.

[4] A surgical microscope is normally used to assist in attaining maximum visibility.

symptoms associated with spinal-cord compression (myelopathy[5]) or "long tract" signs. *See id.* at 12.

8. An x-ray and an MRI taken on March 25, 2004, indicated that there was a mild narrowing of the disc space at C4-C5. Plaintiff was diagnosed as having some impingement on the spinal canal at the C4-C5, C5-C6, and C6-C7 levels, with the most severe impingement at the C5-C6 level, causing a narrowing of the spinal canal (spinal stenosis). *See* Dkt. No. 75 at 21. There was mild disc-space narrowing and grade one retrolisthesis at the C5-C6 level (meaning that the C5 vertebral body was a little farther back in relation to the C6 vertebral body). *See id.* at 13. Also, at the C5-C6 level, there appeared to be a mild spondylitic osteophyte eccentric to the left. *See id.* at 14.

9. Prior to surgery, there was no evidence of spinal-cord edema.

C. Plaintiff's surgery

10. On November 4, 2004, Plaintiff was brought into the operating room and placed on the table in the supine position. *See* Dkt. No. 74 at 83. He was then placed under general anesthesia and intubated. *See* Joint Trial Exhibit "B" at 1086.[6]

11. Thereafter, Plaintiff's chin was placed in a chin strap and a ten-pound weight was attached to provide cervical traction. *See id.*; *see also* Dkt. No. 74 at 83-84.

12. At 11:38 a.m., the first incision was made. *See* Joint Trial Exhibit "B" at 1086.

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[5] Myelopathy refers to pressure on the spinal cord; specifically, it is pressure that is severe enough to manifest external symptoms.

[6] Received into evidence by stipulation.

13. Prior to entering the C5-C6 disc space, a fluoroscopic image was taken. The image indicated that the needle was actually at the C6-C7 disc space; and, therefore, the needle was moved to the appropriate space and another image was taken to verify its placement. *See id.*

14. A drill was used to clean out the disc space, and ostephytic ridges on both the inferior border of C5 and superior border of C6 were drilled down. *See id.* at 1087.

15. An upbiting curette was then used to remove the PLL and the disc material from the osteophytic ridges. *See id.* A Kerrison rongeur was then inserted, and the ostephytic ridges on both the inferior and superior end plates were taken down in either direction. *See id.* A Kerrison rongeur was then used to remove any material from the foramen and to further trim down the anterior aspect of the vertebral bodies to ensure that the bone graft fit properly. *See id.*

16. A Cornerstone template was used to check for the proper sizing of the bone graft, and a 5-mm medium sized graft was selected. *See id.*

17. At some point between 13:05 and 13:15, the graft was worked into place by tamping with a "tampon mallet." Plate and screws were inserted to secure the graft. *See id.* at 1087. Around this time, Plaintiff's blood pressure, both the systolic and diastolic, dropped about 15 millimeters. *See id.* at 1091.

18. Prior to closing, another fluoroscopic image was taken to verify that the graft, plate and screws were properly placed. *See id.* at 1087, 1091.

19. A surgical note stated that "the surgical procedure was itself uneventful except for some bulging of the dural tube noted while performing the decompression." *See* Dkt. No. 84 at 27.

D. Plaintiff's post-surgical condition

20. When Plaintiff came out of anesthesia, he complained that he was experiencing weakness in his legs. *See* Dkt. No. 74 at 72. Dr. Krishnamurthy directed that an x-ray be taken to look at the position of the graft. He also directed that an MRI scan be taken and further prescribed that Solu-Medrol, a steroid that can reduce inflammation in the spinal cord, be administered. *See id.* at 95; Joint Trial Exhibit "B" at 986-87.

21. The x-ray and MRI showed that Plaintiff suffered from mild cord impingement at C4-C5, C5-C6, and C6-C7, with extensive edema in the spinal cord. *See* Dkt. No. 74 at 65-66.[7]

22. Plaintiff was diagnosed with "incomplete quadriplegia." *See* Dkt. No. 63 at ¶ 18; Dkt. No. 66 at 4.

III. FINDINGS OF FACT AND CONCLUSIONS OF LAW

To establish liability in a medical malpractice action, a plaintiff must prove by a preponderance of the evidence that the defendant deviated from good and accepted standards of medical practice and that the departure was the proximate cause of the injury. *See Prestia v. Mathur*, 293 A.D.2d 729, 730 (2d Dep't 2002) (citations omitted). "Where . . . conflicting expert testimony is presented, the [fact finder] is entitled to accept one expert's opinion, and reject that of another expert[.]" *Ross v. Mandeville*, 45 A.D.3d 755, 757 (2d Dep't 2007) (citations omitted).

As stated, the Court heard testimony from Dr. Krishnamurthy who, while not able to

[7] However, neither the post-operative x-ray nor the MRI indicated improper placement of the graft, plate or screws. *See* Dkt. No. 74 at 101.

recall the details of Plaintiff's operation, referred to the surgical notes and testified to his usual procedure. First, Dr. Krishnamurthy noted that he did not generally use distractors for this procedure but, instead, used cervical traction to provide the necessary distraction. *See* Dkt. No. 74 at 17, 19-20. Although it was not recorded in the surgical notes, Dr. Krishnamurthy stated that it was his practice to use an intra-operative microscope during this procedure to increase visualization and that he had never performed an ACDF without the assistance of a microscope. *See id.* at 17-19, 80.[8]

Regarding the method of distraction used during Plaintiff's surgery, Dr. Krishnamurthy testified that it was his practice to place the patient's head in traction, using a chin strap and a pulley and weights. *See id.* at 48.[9]

Dr. Krishnamurthy also offered several theories as to the cause of Plaintiff's injury. In Dr. Krishnamurthy's opinion, the likely cause of the edema shown on the post-operative MRI was the removal of the material causing Plaintiff's pre-surgical spinal-cord compression. *See* Dkt. No. 74 at 106-07. Dr. Krishnamurthy testified that the relief of the compression itself could cause

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[8] In fact, Plaintiff was initially scheduled for surgery in September of 2004, but that surgery was cancelled because of the unavailability of a surgical microscope. *See* Dkt. No. 74 at 80.

[9] While at trial Dr. Krishnamurthy did testified that, in the present case, he also "used [the] anesthesiologist to pull the neck," he could not recall specifically doing so, and neither the operative report, the anaesthesiology record, nor the surgical nurse's intraoperative report mentioned this occurrence. Moreover, Dr. Krishnamurthy failed to provide this important detail during his pretrial deposition, which occurred before Dr. Soriano opined in his report that such assistance was critical in order to provide sufficient distraction.

The anaesthesiologist who participated in Plaintiff's surgery was not called to testify at trial to verify this claim.

swelling in the spinal cord because of the spinal cord's sensitivity to the procedure. *See id.* at 103-04.

When questioned about the entry in the surgical notes referring to a bulging of the dural tube, Dr. Krishnamurthy had no explanation but did opine that, among other things, such an occurrence was consistent with a contusion.[10] *See id.* at 72.

Dr. Cooney, the radiologist, testified that he reviewed both the pre- and post-operative MRIs and x-rays and prepared a report detailing his findings. *See* Joint Trial Exhibit "B." Referring to the report that he had prepared, Dr. Cooney testified that the post-surgery MRI and x-rays indicated that there was mild cord impingement at C4-C5, C5-C6, and C6-C7, with extensive edema in the cord, out of proportion to the degree of cord impingement. *See* Dkt. No. 75 at 27-28. Although not opining as an expert as to causation, Dr. Cooney noted in his report that "[t]his suggests that it may be due to a contusion of the cord or may represent edema in the cord related to a preexisting degree of compression that has since been relieved." *See id.* at 28.[11] Dr. Cooney also testified that, in addition to the two possible causes included in his report, Plaintiff's injury could have been caused by ischemia.[12] *See id.* at 29-30.

Dr. Cooney testified that the edema was not present in the pre-operative images from March but commented that the edema's absence from those images did not preclude the fact that

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[10] Dr. Krishnamurthy also testified that, although not always necessary in this type of surgical procedure, he did have to tamp the bone graft into place during Plaintiff's surgery. *See* Dkt. No. 74 at 47-48.

[11] During this portion of Dr. Cooney's testimony, he was reading from the report that he had prepared for Dr. Krishnamurthy immediately following the surgery. *See* Joint Trial Exhibit "B."

[12] Ischemia means a lack of blood supply. *See* Dkt. No. 75 at 30.

it could have manifested itself at some point between the March 25, 2004 MRI and the November 4, 2004 surgery. *See id.* at 31. Dr. Cooney admitted, however, that there was no clinical evidence to support the hypothesis that the edema was present before the November 4, 2004 surgery. *See id.* at 31. In the absence of pre-operative edema, Dr. Cooney opined that the two most likely causes for the post-operative edema were a contusion of the spinal cord occurring during surgery or ischemia occurring during surgery. *See id.* at 33-34.

Defendant's expert, Dr. Dunn, testified that he had reviewed Plaintiff's case history, including his medical records, MRIs, x-rays, and deposition testimony. *See* Dkt. No. 76 at 11. While he testified that Dr. Krishnamurthy did not deviate from the accepted standard of care in the procedures he followed, he could not conclude "with a high degree of medical certainty what the cause was for the complication." *See id.* at 53.

Dr. Dunn opined that the most likely cause of Plaintiff's injury would be "some vascular compromise" on the "anterior spinal artery," causing ischemia.[13] *See id.* at 53-54. Although Dr. Dunn stated that he believed that this was the most likely cause of Plaintiff's injury, he admitted that there was no clinical evidence and no evidence in the medical record whatsoever that would support this theory. *See id.* at 51-52, 56-57. Dr. Dunn did agree that a direct trauma (contusion) to the spinal cord caused by inserting the graft too far could also cause the edema. *See id.* at 51, 53-54.

Dr. Soriano, Plaintiff's expert, testified that he had reviewed Plaintiff's case history, medical records, diagnostic studies, including the pre- and post-operative MRIs and x-rays and

[13] Dr. Dunn believed that, if Plaintiff was positioned in a certain way during the surgery, a spinal artery could have become compressed, cutting off the blood supply to the spinal cord, causing ischemia. *See* Dkt. No. 76 at 54-55.

deposition testimony. He then opined that Plaintiff's condition – "incomplete quadriplegia" – resulted from inadequate surgical care. *See* Dkt. No. 84 at 10. He testified that the swelling and edema which was displayed in Plaintiff's post-operative MRI and x-rays was consistent with a contusion of the spinal cord. Although Dr. Soriano agreed that such edema and swelling could be consistent with a preexisting degree of compression since relieved, "decompression," as Dr. Cooney suggested, he opined that Plaintiff's preexisting compression was not severe enough to cause the edema. *See id.* at 41.[14]

Dr. Soriano testified that this is further borne out by the surgical note which stated that "the surgical procedure itself was uneventful except for some bulging of the dural tube noted while performing the decompression." *See id.* at 27. Dr. Soriano opined that a bulging of the dura can be caused by one of two things: either a swelling of the spinal cord from damage of some kind or an incomplete removal (decompression) of material, such as a bone spur or PLL, that is pushing on the spinal cord and its covering. *See id.* at 27-28.

Dr. Soriano referred to his review of the post-operative x-ray and MRI and opined that they indicated that there was still impingement at C5-C6 which would mean that not all the bone spurs and/or PLL were removed.[15] Dr. Soriano opined that these remaining bone spurs could have been forced into the spinal canal while the graft was being tapped into place.

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[14] This testimony is consistent with the other medical testimony regarding Plaintiff's pre-operative x-rays and MRI.

[15] Dr. Krishnamurthy and Dr. Cooney both testified that there appeared to be bone spurs remaining after surgery. Dr. Krishnamurthy also testified that he believed that part of the PLL remained. Dr. Dunn also noted that there was an "irregularity [present] behind the vertebral bodies at C5 and C6" shown in the MRI taken after the operation that could have been bone spurs or remnants of the PLL. *See* Dkt. No. 76 at 46, 81-82.

Dr. Soriano testified that, in his opinion, Dr. Krishnamurthy's failure to use an appropriate method of distraction resulted in insufficient space to allow for the removal of all of the bone spurs and PLL. *See* Dkt. No. 84 at 31. Dr. Soriano agreed with Dr. Krishnamurthy and Dr. Dunn that the use of a chin strap with an attached weight can be an acceptable form of distraction, but only if the anesthesiologist or assisting surgeon lifts up the patient's head so that it is actually in the air and not against an immovable object such as a headrest. *See id.* at 19-20. Dr. Soriano testified that, if the head is not raised, the weight attached to the chin strap will merely tip the chin back but will not pull the neck apart and, therefore, will not provide sufficient distraction. *See id.* at 20. Dr. Soriano further opined that, if it was impossible to remove all of the bone spurs and/or the PLL, the accepted standard of care would require Dr. Krishnamurthy to make sure he had enough distraction so that he would not be required to tamp the bone graft into place, which could cause the bone spurs or PLL to impinge on the cord. *See id.* at 48-49.

Dr. Soriano testified that, in his opinion, Dr. Krishnamurthy's failure to provide sufficient distraction prevented him from removing the bone spurs and PLL completely, which were already causing some compression of the spine. Furthermore, the insufficient distraction then required Dr. Krishnamurthy to tamp the graft into place, causing Plaintiff's injury. That, in his opinion was a deviation from the accepted standards of care. *See id.* at 31-33.

The Court finds that Dr. Soriano provided the most credible analysis regarding the likely cause of Plaintiff's injury. Although both Dr. Cooney and Dr. Dunn hypothesized that Plaintiff's injury "could" have resulted from vascular insufficiency/compromise during the surgery, there was no evidence to support that theory. Even Dr. Krishnamurthy discounted this theory, noting that, because Plaintiff's blood pressure remained relatively normal throughout the procedure, a

vascular insufficiency was not the cause of Plaintiff's injury. *See* Dkt. No. 74 at 107.[16] Further, the bulging of the dura during the surgery supports Dr. Soriano's position that a contusion of the spinal cord occurred during the operation. *See* Dkt. No. 84 at 27-28.

With respect to the theory that a pre-existing compression caused Plaintiff's injury, Dr. Dunn, Dr. Cooney, and Dr. Soriano all testified that Plaintiff exhibited no clinical signs of severe spinal cord compression prior to the surgery. *See* Dkt. No. 76 at 81; Dkt. No. 75 at 54;Dkt. No. 84 at 41. Dr. Soriano testified that, if the spinal cord was already compressed by ninety percent, such an edema could be caused by simply removing the compression; but, not in the present matter, where the cord was only compressed by five to ten percent. *See* Dkt. No. 84 at 41-42.

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[16] Specifically, Dr. Krishnamurthy testified that, although a lack of blood flow could cause an edema, it did not cause the edema in the instant case. In response to the Court asking Dr. Krishnamurthy "[w]hat other things could have caused it[,]" the following colloquy ensued:

Dr. Krishnamurthy:	Lack of blood flow to the spinal cord. If there is a drop in the blood pressure, that can cause it.
The Court:	That could cause it. Do you know if that happened in this case?
Dr. Krishnamurthy:	No. The blood pressure was normal.
The Court:	So, that couldn't have caused it here, but these other two things could have caused it. Anything else that could have caused it, in your opinion?
Dr. Krishnamurthy:	No.

See Dkt. No. 74 at 107. Dr. Krishnamurthy's testimony eliminates Dr. Dunn's vascular compromise theory as a possible cause of Plaintiff's complications.

In addition, a medical malpractice patient may rely on the doctrine of *res ipsa loquitur.*

> To rely on the doctrine of res ipsa loquitur, a plaintiff must demonstrate that (1) the injury is of a kind that does not occur in the absence of someone's negligence, (2) the injury is caused by an agency or instrumentality within the exclusive control of the defendants, and (3) the injury is not due to any voluntary action on the part of the injured plaintiff.

Simmons v. Neuman, 50 A.D.3d 666, 667 (2d Dep't 2008) (citations omitted); *see also States v. Lourdes Hosp.*, 100 N.Y.2d 208, 211-12 (2003) (citations omitted).

"[T]he doctrine concerns circumstantial evidence which allows, but does not require, the fact finder to infer that the defendant was negligent[.]" *Simmons*, 50 A.D.3d at 667 (citation omitted). As such, a plaintiff need not eliminate all other possible causes of his or her injury but only reduce those causes such "'that the greater probability lies at defendant's door.'" *Kambat v. St. Francis Hosp.*, 89 N.Y.2d 489, 495 (1997) (quotation omitted).

In the present matter, Plaintiff is entitled to rely on *res ipsa loquitur*. Based on all of the credible testimony, the Court finds that it is highly unlikely that Plaintiff's injury was caused by a vascular insufficiency (ischemia) or by the removal of the compression itself. The preponderance of the credible evidence supports the proposition that Plaintiff's injury was caused by Dr. Krishnamurthy providing an insufficient amount of distraction, which caused the bone graft and/or the bone spurs and PLL to come into contact with Plaintiff's spinal cord when the bone graft was tamped into place. Such contact would cause the contusion and result in the edema that was present post-operatively.[17] Proper distraction would have provided Dr.

[17] While the C-arm images taken of the graft placement during the operation may have provided direct evidence as to the cause of Plaintiff's injury, the SVAMC does not require its (continued...)

Krishnamurthy with better visualization, which would have allowed him to more thoroughly remove the material that was causing the compression. In any event, with proper distraction, Dr. Krishnamurthy might not have been required to tamp the bone graft into place or he would have been able to employ less force if tamping were still required. Based upon the preponderance of the credible evidence, the Court finds that Plaintiff's post-operative "incomplete quadriplegia" was caused by a deviation from the acceptable medical standard of care during the surgery on November 4, 2004.

IV. CONCLUSION

After reviewing the trial transcript and the parties' post-trial submissions, and the applicable law, and for the above-stated reasons, the Court hereby

HOLDS that Plaintiff established, by a preponderance of the evidence, that Defendant's actions caused his injury and that these actions were a deviation from the accepted standards of medical practice; and the Court further

ORDERS that, in light of the Court's conclusion that Defendant is liable to Plaintiff for

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[17](...continued)
doctors to retain paper copies of C-arm images taken during surgery. This failure, however, should not be imputed to Plaintiff. *See Turcsik v. Guthrie Clinic, Ltd.*, 12 A.D.3d 883, 887 (3d Dep't 2004) (quotation and other citation omitted).

the injuries he suffered as a result of his November 4, 2004 surgery, Defendant's counsel shall initiate a telephone conference, using a professional conferencing service, with the Court and opposing counsel, on **May 17, 2011**, at **9:30 a.m.**, to set a date for the damages portion of this trial.

IT IS SO ORDERED.

Dated: May 3, 2011
Syracuse, New York

Frederick J. Scullin, Jr.
Senior United States District Court Judge